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ABSTRACT

Conference participants consider the role of the architect and the programer in planning and constructing facilities for the mentally handicapped. David Rosen discusses the design problems of state institutions with particular reference to the Woodbridge State School in New Jersey; Gunnar Dybwad describes the need of the programer for the architect; and Arnold Gangnes treats the need of the architect for the programer. The architectural program is defined as a means of communication with the client by Edwin Cromwell, and the programming process is detailed by John Garber. Also provided are David Ray's and John Truemper's consideration of the programer and architect in action and J. Eugene McKee's treatment of planning for community facilities. Two forwards, excerpts from informal discussions, and a list of registrants are included. (JD)

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ARCHITECTURAL CONTRIBUTIONS TO EFFECTIVE PROGRAMMING FOR THE MENTALLY RETARDED

Conference Report of the Architectural Institute

Denver, Colorado May 15-16, 1967

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Conference Report of the Architectural Institute, Denver, Colorado, May 15-16, 1967.

The conference was initiated by the American Association on Mental Deficiency under the presidency of Mrs. Marguerite J. Hastins, N.S.W., and was held in conjunction with the 91st annual convention of AAMD. Co-sponsors were the American Association on Mental Deficiency; the American Institute of Architects; the Division of Mental Retardation, Rehabilitation Services Administration, Social and Rehabilitation Service; and the National Association for Retarded Children.

This report is published by the National Association for Retarded Children in an effort to bridge the communication gap between architects and programmers concerned with improving the design of facilities for the mentally retarded.

In the interest of a more concise and coherent publication some editing was necessary. Every effort has been made, however, to retain all information that will make this report a valuable resource document. It should be noted that some views and opinions expressed in this report do not necessarily reflect those of the sponsoring agencies.

Acknowledgment is gratefully made to the sponsors and all who participated. Special appreciation is expressed to Louis Belinson, M.D., FAAMD, for program arrangements and serving so ably as Institute Chairman, and to the steering committee: Ronald B. Almack, Division of Mental Retardation; Robert H. Chapman, A.I.A.; Edwin B. Cromwell, F.A.I.A.; Arnold G. Gangnes, A.I.A. NARC; Clayton J. Kick, ACSW, NARC; William Mapoles, AAMD; David B. Ray, Jr., AAMD; and A. Rorke Vanston, A.I.A., Division of Mental Retardation.

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An appropriate physical environment is a most effective tool in the total habilitation process for the mentally retarded, and architects have a major responsibility in creating such an environment. This is highly significant to good programming. The Architectural Institute, whose proceedings are reported herein, offered an excellent opportunity for programmers and architects to understand better the relationship between design concepts and program philosophies and to appreciate more fully the importance of each other's contribution in meeting the needs of the retarded.

The interest and enthusiasm toward a common goal--to improve the design of facilities to reflect current philosophies--was evidenced in the proceedings.

We congratulate all those who cooperated in the planning of the Institute, and those who participated in the presentations and discussions. It is our belief that this record of the proceedings will be of value to an audience far beyond those who attended the Institute.

In publishing and distributing this report of the proceedings the National Association for Retarded Children renders an important service to all those who are dedicated to improving the physical environment and thereby contributing immeasurably to a better life for the mentally retarded.

Robert I. Jaslow

ROBERT I. JASLOW, M.D.
Director Division of Mental Retardation
Rehabilitation Services Administration
Social and Rehabilitation Service

The formal presentations and the excerpts from informal discussions contained in this publication present the results of an interesting experiment in communications. In view of marked changes in program philosophies for the mentally retarded there has been a growing dissatisfaction with the architectural design and planning of facilities. Sporadic attempts have been made to cope with this dilemma but this Institute was the first effort to bring together the two groups, programmers and architects, who have the major responsibility for effecting an improvement.

The dismay and frustration on the part of those reponsible for programs has been matched in past years by the frustration and futility of the architects anxious to learn what was desired in program requirements so they could create a more appropriate physical environment.

The rapid increase of national interest on behalf of the mentally retarded served to focus upon this failure, and to demand a more intimate working relationship between architects and programmers, The significance of the distinctive role of each is widely recognized but there is a need to find a common language in which to communicate.

The Architectural Institute held in Denver, Colorado, on May 15 and 16, 1967, was a welcome meeting ground for both factions. It was attended largely by architects and programmers currently involved in planning and constructing facilities for the mentally retarded. The meetings provided an invaluable opportunity for architects and programmers to exchange ideas and experiences, and suggest guide-lines for developing more meaningful and effective working relationships between them.

The following presentations and discussions point to the fact that a team working relationship is essential between programmer and architect in order that each can make his maximum contribution.

Louis Belinson, M.D.

Louis Belinson, M.D. FAAMD
Chairman of the Institute

PRESENTATIONS

The following are transcripts of the prepared papers delivered during the two-day meeting of the Architectural Institute.

**David Rosen,
M.S.
Superintendent,
Woodbridge
State School
Woodbridge,
New Jersey**

PHILOSOPHY AND COMMUNICATION-- A BLEND

It has often been said that schools and institutions should be constructed with a life expectancy of 10 to 20 years in order that they not commit future generations to outmoded facilities. Because of budgetary considerations, this philosophy has not been practiced universally and when implemented has been the exception rather than the rule. A major responsibility of institutional planners is to plan for future requirements as carefully as they plan for existing needs.

In most States, the percentage of severely and profoundly retarded far outnumber the mildly and moderately retarded being admitted to residential facilities. In constructing cottages for the latter group the goal is to simulate a homelike atmosphere; however, the cottage for the severely and profoundly retarded must have additional characteristics which lend themselves to effective care, treatment and training.

Basic standards and requirements for clothes rooms, bathrooms, day rooms, etc. can usually be projected with a satisfactory degree of accuracy. The areas required for treatment, training, therapy and recreation require a more imaginative approach. A functional residential facility for the severely and profoundly mentally retarded should place greater emphasis on physical and mental habilitation than that provided for less handicapped, mildly retarded counterparts. A school, hospital and facilities offering ancillary services are an integral part of the total planning spectrum.

Areas away from the cottage should be strategically planned for leisure time activities. Playgrounds, picnic grounds, pools hard surface areas, athletic courts, bicycle tracks provide the residents of the institutional community with services that appropriately simulate community services.

The location of the hospital, school and service facilities is critical in planning this type of facility. Staff member offices must be accessible to the residents and in close proximity to the administration building to reduce written or delayed personal communication. Facilities which lend themselves architecturally to isolated empires can minimize the administrators efforts to develop a team operation.

At Woodbridge State School, 500 of the 1,000 residents are non-ambulatory. Therefore, much of the program must be conducted within the cottage. It is neither sensible nor economic to service this group on a daily basis in distant buildings such as the school and hospital.

Fortunately, the planners of Woodbridge State School provided sufficient flexibility in the cottages, making it possible to provide a comprehensive individualized program geared to realize each resident's physical and mental potential. Education, physical habilitation, recreation and activities of daily living programs are conducted in the cottages as a result of this architectural flexibility. Program changes are not thwarted by physical limitations.

The non-ambulatory cottages have lent themselves to a constantly changing program. The recreation room has, in one phase, been converted into a small dormitory increasing the dormitory areas to three. The resultant reduction in beds enables each dormitory area to have a central recreation area reducing the distance and easing the movement of children from their cribs for exercises and recreation. Subsequently, a large physio-therapy room which would provide sufficient space for planned activity and equipment was indicated. Beds were removed from the space originally planned for recreation and the area was made available for a combined physio-therapy and occupational therapy room.

Cottage design permits the entire unit to be utilized as a recreation activities building, or a hospital annex as need mandates.

At most new institutions, planners have not used sufficient foresight to build into the structure space for expansion of programs. These professionals cannot be held responsible for not knowing what specific expansion will take place, but they can be held responsible for not envisioning and providing for inevitable growth.

Midway through the first year, Woodbridge staff was hard pressed for office space due to the initiation of federal grants, volunteer services, a building service department, separate department of physio-therapy and enlargement of traditional services. All existing space was utilized. Experience has shown that each department has required additional office space to meet new responsibilities precipitated by growth. In a short two and one half years, five programs have required additional space. If oversized basements with large windows or unfinished extra storage space had been provided, these areas could have been converted for program use.

Today, architects and planners are more sophisticated and work with better materials and equipment. However, we never seem to be satisfied. At Vineland State School, a New Jersey institution opened in 1888, there was continued urging to replace the wooden floors with terrazzo and to place tile on the walls. At Woodbridge State School we have tile walls, radiant heating, terrazzo floors, drains, dining room with stainless steel tables, and facilities that are seemingly luxurious. In stressing simplified maintenance and sanitation, warmth and safety have been sacrificed. To reduce injuries in our 'ceramic steel institution', requests for non-skid tape in bathrooms and nylon sponge carpeting have been made.

Architects and planners must judge what type of inexpensive floor covering is practical and will have to devise means of installing and maintaining appropriate decorations within the cottages. Such decorations will help to reduce the cold atmosphere often found in today's modern facilities. Hot water pipes placed under sidewalks and roads would assist in melting snow. Placed in a field, they inhibit efforts at landscaping.

Most federal grants will subsidize conversion or remodeling but not new construction. A Superintendent of a new facility can request construction in the capital budget for succeeding years but prospects for approval are small and unlikely to come to fruition for five or ten years. In the interim, he must manage with makeshift facilities or his program becomes stunted. Imaginative original planning will make design and construction less costly and easier in the long run.

Per capita cost for adequate programs and facilities for the severely and profoundly retarded should exceed the cost of programs and structures in the community designed for normal persons with severe handicaps and prolonged illness. Utilizing the information and experience available to them, those responsible for providing the physical plant and life setting for the handicapped must exert imagination, foresight and resourcefulness to fulfill their professional obligations in this highly specialized area.

THE PROGRAMMER NEEDS THE ARCHITECT

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I am particularly pleased with the topic that has been assigned to me "The Programmer Needs the Architect."

As Director of the Mental Retardation Project of the International Union for Child Welfare I organized in April 1966, in Copenhagen, jointly with the Danish Mental Retardation Service, the first International Working Conference on Architectural Planning in Mental Retardation. We were able to bring together architects from eighteen countries as widely differing as Spain Poland, Yugoslavia, Australia, Finland and Canada. It is not my intention to present to you an overall account of that conference, but I want to share with you the major point which proved to be controversial when we tried to come to some consensus at the end of the three-day meeting. That major point was precisely the one implied in my assigned topic today namely: "The role of the architect in planning facilities and services for the mentally retarded."

Briefly, a more conservative group at that conference felt that basic over-all planning was the responsibility of programmers, who would call in the architect once planning had been crystallized as to the type of building or buildings needed.

Another group, which in my own bias I will characterize as the more dynamic and progressive element, including in particular the Danish architects, felt very strongly that it was essential for architectural considerations to be part of the planning process from the very beginning.

Since the Copenhagen meeting I have discussed this question with architects and administrators in many countries, and indeed I now feel more strongly than I did in Copenhagen about the basic contribution architecture can and must make to our field.

You will note that I have just now switched from the term architect to architecture, and I want to underline the significance of this. What seemed to disturb some of the administrators at our Copenhagen meeting was the thought that the architect's task was to draw up designs and, after their approval, proceed with their implementation-- that he should not be in a position to influence unduly (and that means to his own interest) the planning process. This calls for a clarification as to people involved in the planning process--a very vital question and one invariably involving dispute.

Obviously the architect commissioned to carry out a building project should not be in a position to aggrandize the size of his task, but we should recognize that the same can and must be said with regard to other professions, for whom the self-interest might be expressed in the size and number of rooms or building complexes ear-marked in the plans for their particular sphere of activity. As one visits institutions for the mentally retarded it is not hard to recognize inappropriate and lopsided assignment of building space, reflecting undue advantage gained by one or the other professional pressure group. This refers to location as well as to size of space.

Some of you may feel that it is, after all, the role of the administrator to act as a mediator between such opposing forces.

This brings us to an intriguing and urgent question which would seem to call for further attention in your discussions, namely: what and whom do we have in mind when we talk about programmers and planners?

Certainly administrators must play a vital part in planning and it is not at all meant as criticism but an objective assessment of their role, that inherently they must proceed from the status quo and, to a considerable extent, defend it. Similarly, the state architect, as part of the state administration, is inherently the spokesman for the status quo, the defender of the involved network of regulations, precedents and traditions which are the backbone of state government.

Is it not in the essence of the planning process, which may to a considerable extent determine the nature and the potential of activity ten, twenty, thirty years hence, that we involve not only those carrying responsibility for the present programs but others who from their professional or civic farsightedness can with a greater degree of independence introduce factors of future significance?

Here then lies a challenge to the professional field of architecture, because I am well aware that the profession has not taken an adequate interest in the multitudinous and complex problems relating to building design in specialized fields such as mental retardation.

At the Copenhagen meeting, Dr. Karl Grunewald, a child psychiatrist who is head of the Swedish Mental Retardation Service, stated: "The basic difference between the past and the present is the overprotective and custodial care of the past versus the activating and outward looking care of today." He added: "The architectural design and layout of a building and its surroundings can either restrict further development or serve as the outer framework for a progression." I would strongly endorse these statements, but feel we must go further than that. The location of a building can be of crucial significance and, while this involves administrative factors, architecture certainly has also significant considerations to offer. Furthermore, the very question whether we should plan a facility, or several facilities, and within the facilities a single building or a variety of buildings, should again be predicated in part on new knowledge of building design, building materials and construction methods which allow us today far greater choices in construction than in past years.

It is this basic contribution architecture can make which requires that it be represented from the very beginning in the planning activity.

Until the fairly recent past, there was a tendency to divide the field of mental retardation rather rigidly between "community services" and " institutional services." This expressed itself very tellingly also in architectural design. Today we are moving along quite different lines, thinking of a whole range of residential facilities accommodating a wide range of types and length of care, and creating a whole new range of design opportunities in terms of building and program.

Indeed, one might well question whether to some extent building design is program by its very effect on the people who live and work in the structure. I call your attention to a most recent study along these lines from our specific field. Architect Kenneth Bayes of London has just published a study on "The Therapeutic Effect of Environment on Emotionally Disturbed and Mentally Subnormal Children." I do hope all of you will be able to secure a copy of this study which I hasten to add does recognize work done in the United States. Certainly not only size and shape of rooms, colors, patterns of acoustical and visual stimulation but also the relationship of all of these to surrounding space, are of tremendous therapeutic significance. From the vantage point of these considerations--and I hardly need stress that much of this is still hypothetical, calling for further research, as is the case in other areas of mental retardation--architecture certainly need not hesitate to take its place among the basic helping professions in mental retardation, alongside medicine, psychology, education and social work.

It is interesting, by the way, that Architect Bayes, on the basis of his two-year study, concluded that the architectural needs of the maladjusted or emotionally disturbed children may often be different from those of the mentally retarded or deficient, and that it therefore would be most productive to concentrate in any study on one or the other of these groups.

There has been in recent years much discussion in the United States and elsewhere about the desirable size of residential institutions. Usually this has been approached from a sociological-psychological point of view considering factors such as effective management of groups, span of control, effective staff interaction, etc. These are all very weighty considerations but here,too,is a vital field for the architectural member of the planning groups. Starting with the desirable characteristics of the basic types of living units to be provided and the relationship and intercommunication between these units, the architect from his frame of reference can certainly make significant recommendations as to optimal size of an institutional complex under given circumstances.

May I reemphasize a point I have just made in passing: attention to the basic types of living units needed in an institutional complex. I have had the opportunity to confer with many architects about design of institutional facilities and to view the basic design outline. Almost invariably one is first shown the administration building, and next such special buildings as hospitals, auditoriums, school, etc. And last comes the place where the people are going to live for whom the institution is organized--the residents. This may sound like a caricature, but unfortunately it is based on my experience in many different states right up to the present time.

There is no intention here to demean the importance of administration, but administration is a tool, not an end in itself, and the main thrust of the architectural effect, indeed the genius of the architect, should manifest itself in the environment he creates in the living quarters of the residents.

I would like to underline another area where the programmer needs the architect much more than commonly recognized in the United States, and that is in interior design and furnishings.

The attractiveness and indeed the beauty of Danish institutions for the mentally retarded has been universally acclaimed. It is important therefore to stress that the various private architects engaged by the Danish Mental Retardation Service insist on having a decisive voice in the selection and, where indicated, the actual design of furnishings and color schemes. They feel this is important not just up to the time when the new building is turned over to the state, but they see it as their continuing responsibility. As a result, these buildings have an atmosphere that substantially contributes to the treatment program. All of this happens in closest collaboration between the central office staff of the Danish Retardation Service, the program staff in the institutions and the architects who, in this way, learn about mistakes in over- or under-estimating the capacity of the resident units, the appropriateness of wall finishes, furniture, etc.

In contrast, a few months ago in another European country, I had the sad experience of seeing an ingenious architectural design for small residential units, within the framework of a larger institution, almost destroyed by totally inappropriate interior finishes and furnishings.

Another area where the programmer needs help from the field of architecture pertains to the maze of existing laws, rules, regulations and administrative precedent which in various states govern building design and construction. As an administrator of a state program for many years, I am keenly aware of the need for observing standards, safety regulations and the like. But I also know of widely shared experience in many states that some rules, standards and administrative procedures no longer are geared to the availability of new and often more economical building materials, new methods of construction and, in particular, new approaches to education, therapy and rehabilitation. I sincerely hope that in the discussions there will be frank and detailed comments as to this discrepancy between rules and standards and new potentials in building design and construction.

However, notwithstanding the most deleterious consequences of these outdated and unrealistic regulations and construction practices, it is by no means possible to ascribe the deplorable state of architecture for residential facilities in the field of mental retardation just to them. To the contrary, it is time to realize that in the organization, construction, and interior arrangements and furnishings of residential facilities for the mentally retarded we will have to consider as complete a reversal of long established practices as has become necessary, on the basis of new knowledge and new insight, in other aspects of the field of mental retardation.

The point that needs to be made here is that it is just not enough to "clean up" our residential facilities, to eliminate over-crowding, to install more adequate equipment, and to utilize technical advances to further the often so grossly over-estimated factor of "ease of circulation." We obviously need to go much farther than that.

Just two weeks ago, I visited one of our better known state institutions for the mentally retarded in the East, and spent some time in a so-called "day room" in which some fifty severely and profoundly retarded men were crowded--a considerable number of them either completely naked or barely dressed. The room was devoid of furnishings, human feces were all over the ceiling, the stench was sickening. Of course, everyone on the staff deplored that situation, and repeated efforts have been made to secure from the legislature special funds to rehabilitate the building and add additional staff which would permit closer supervision and a higher level of patient care to overcome these deplorable conditions. However, what struck me as far more deplorable and a far greater indictment of the backwardness of that state was a new building on the same grounds, constructed only a few years ago supposedly according to modern and adequate standards of care. That building was clean and free from odor but it was a sterile mass of ugly glazed brown tile, with detention type windows, depressingly low ceilings, with an interior decor befitting a rest room in a bus station.

Although the superintendent of that institution is a psychiatrist and the state department of which this institution is an administrative unit is a mental health department directed by psychiatrists, it is fair to say that the building as a whole was in complete contrast to what modern dynamic psychiatry stands for. Adequate as it was in terms of technical construction, the building violated the most basic beliefs of creative architecture as far as esthetic values and the creation of human living space are concerned.

It is quite safe to predict what will happen in this building--a great deal of destructiveness, broken windows, damaged furnishings, and all of this will be cited by future administrators as proof that this is the kind of environment one has to create for that kind of destructive residential population.

For many years now, Scandinavian countries have demonstrated that it is entirely feasible to have attractive, informal, esthetically stimulating day rooms and bedrooms, not only for the mildly retarded but also for moderately and severely retarded. How long shall we go on with our backwardness and continue to create institutional structures which by their very design constitutes almost insurmountable roadblocks to a dynamic program of rehabilitation in a residential setting? Here lies a most urgent challenge for the planner and the architect.

THE ARCHITECT NEEDS THE PROGRAMMER

Arnold G. Gangnes
AIA
Chairman,
Architectural
Planning
Committee
National
Association for
Retarded Children

Architecture as related to the mentally retarded covers a much broader base today than even five years ago. Today we are experiencing new designs in the areas of biological, educational and behavioral research. We are seeing increasing interest among Universities in establishing centers of this type. With the great emphasis on education and treatment, our communities are rapidly moving in the areas of diagnostic facilities, day care services and workshop programs. All this is in addition to the ever-increasing specialization developing in the creation of new school facilities for the retarded.

What is happening to our state and private institutions? It is amazing that the institutional picture is the most confused of all. There is great divergence of opinion about institutions; and there is developing a rather enormous hodge-podge of facilities which have to do with 24-hour care of the retarded. Some of these facilities have been designed to reflect new ideas and philosophies of care and some are merely old congregate institutional concepts dressed up in modern facades.

In a field as vast as this one, is it significant that good research in the nature of good plans and programs is singularly lacking? Where can we go to find good background research material? Or isn't there any good work around? I have concluded at times that there is such a divergence of opinion about what is good or bad, that each new building reflects not a "general" concept but more an individual one, and these individual concepts are not universally popular.

Let us try then today to look at the philosophies of care and see if there is not some general basis for agreement. Do we believe in smaller institutions, not larger than 500 beds? Are there advantages for the residents, the attendant staff, the fullfillment of program concepts? Is it so terribly much more costly to build small rather than large, or is it only really a marginal consideration when one reviews the advantages to the resident?

Is it that we believe in these concepts but cannot sell the ideas to our legislators and the public or we cannot get enough staff or what? Or do we really believe in what we say and are willing to go into our states and fight for what is good? Do we believe in small family groupings? If so, what should the living facilities include? Should we have a typical "day room" as in the past, or more space, or more diversified rooms in which the residents can perform different functions?

Do we use old buildings? When is this practicable, and when do we insist that we tear them down? How can we convince people that good design offers the chance for better programs?

Surely the architect needs the programmer, and both need a philosophy and a set of goals on which to base their thinking and approach. Certainly the architect is part of the program process, and with this responsibility must ask himself, "Am I the average architect who is relatively unsophisticated about the mentally retarded and their place in society, or whose principal experience has been viewing them in congregate institutional settings?"

I was impressed in Scandinavia with the innovation and freshness of approach to design shown by the architects and administrators. Sometime, we as architects must ask ourselves "What must I know about this subject to ask the right questions?"

Certainly the schools being built in our country reflect the deep understanding architects have acquired of the educational processes. We must acquire this expertise in the field of mental retardation if we are to be creative and achieve the goals expressed in the theme of this meeting.

The days of the old congregate institution are drawing to a close. Even in New York State where some of the largest institutions are, plans are under way to systematically phase them out and replace them with small, community oriented facilities, some specialized but all geared to a better, more fruitful and more dignified life for the residents.

How many of you have had to put together an estimate for a theoretical building to house an as-yet-not-well-conceived program for an as-yet-undetermined or even predictable population, and do so in a ridiculously short time without programming funds, to meet a budget proposal? Many of you have, I am sure, and can attest to the fact that this is a seriously limiting factor in good programming.

I think we must ask ourselves if we are ready to spend the money necessary, to provide the proper space in which to conduct programs. We will have to face, as the Europeans have, the facts that good programming demands more space which in turn costs more.

I think we as architects should take a long hard look at antiquated codes which arbitrarily impose design standards and/or limitations on our designs at the expense of our budgets. And I do not mean to exclude some federal standards which I think should be re-examined.

We are not ready yet to tackle the socio-psychological aspects and approaches to design, because we are still bogged down with how big, how many, and how much. Let us try to get the mundane problems solved so we can get to discussing some of the deep and unanswered concepts of design.

Let us get at some of the questions raised by Kenneth Bayes in his treatise "The Therapeutic Effect of Environment on Emotionally Disturbed and Mentally Subnormal Children." He asks: Is there any connection between environment and therapy? Is there more in the design of environment than meeting functional needs on one hand and giving aesthetic pleasure on the other? Or do form, color, lighting, texture, etc., have an effect on well-being at a level somewhere between the practical and the sophisticated? Can they have healing power?"

Architect Izumi lays great stress on the value of the "Sociopetal plan," which by its arrangement and shape of rooms encourages the development of stable human relationships. The prime example of this is the family house. "Homes and schools for exceptional children should also belong to this category. A sociopetal plan is not one which allows no privacy, where people are thrown together all the time and cannot get away. The growth of interpersonal relationships depends in a community on being able to slip easily and unobtrusively from one to another of three separate zones of sociability--complete privacy, the intimate group, the larger group" so says architect Izumi.

If I have given the impression that the problems of design for the retarded are manifest in institutional settings, I have done so deliberately. But although the institutional setting and its functional programs are important, so are those community-based so-called "centers" which attempt to provide all services, to the retarded. The broad point of view about philosophy of care, treatment and education is valid here too.

Do we group services to the emotionally disturbed, the retarded, the indigent, the alcoholic, all under one roof, sometimes with common waiting rooms? Or is there a better solution? Do we house many ages and degrees of retarded people in large wards even for short periods of time? Or is there a better answer? Do we limit the habilitative process by seeking to provide all services under one roof? Or is there a better answer?

I hope we can find some common ground on which to begin the design of new facilities. I would like to see architects seeking to improve on designs based on a well accepted program concept.

Edwin B. Cromwell,
FAIA
Architect,
Little Rock,
Arkansas

THE ARCHITECTURAL PROGRAM--A MEANS OF COMMUNICATION

Sometimes when we receive a new job in the office, the client will ask us to come by to see him and discuss the work. Very often the formalities of an agreement are discussed, the client will ask, "How soon can we get the blue prints?" This is a perfectly logical question because he wants to know when he can hire his contractor and begin work. In his mind he can visualize the contractor and the blue prints, the groundbreaking and the bulldozer and he can readily understand eight months or a year for construction. Very often he expects the blue prints in a few weeks. He does not visualize the creative effort which should be put into thinking through the functional, operational, environmental and psychological requirements. And why should he, when most of us in the planning field have neglected these factors. Who will tell him? How will he find out?

To an increasing number of architects, the architectural program is the answer to this problem. It gives a two-way or three-way means of getting ideas across and of communicating.

Perhaps the first idea the program will develop will be that the architect should not start sketching until some research is performed and some basic decisions are reached objectively. Once sketches are made, no matter how diagrammatic, a certain amount of objectivity is lost. The sketches lead to visualization of one sort or another; visualization leads to association and association leads to emotional reaction. Thus we find that decisions are made for the wrong reasons and communications are confused.

The architectural program is designed to prevent this sort of thing and is gaining acceptance more and more. It encourages a dispassionate evaluation of all the factors which need to be studied, and encourages research in those areas where it is needed. The last few years have brought considerable refinement in the development of programs, thanks largely to the health and educational fields. Perhaps the greatest force in this direction has come from the consultant. Twenty-five years ago consultants were used occasionally, and then for highly specialized buildings. Now consultants are used often, and sometimes in considerable numbers on one project, five or six not being unusual. They are very knowledgeable in their areas, and as buildings become more complex, building costs go higher, making it doubly expensive to correct mistakes, and as clients and the public become more discriminating, consultants will be needed more and more.

As programs are systematized the techniques of charting relationships, spaces, environment and behavioral responses will become more precise. The computer will have a place in programming, not only for information retrieval research, but also for part of the design process.

And now, back to the architectural program, we call it "architectural" not because it is written by an architect but because it is written for his use and to guide him. Sometimes the architect does write the program himself, either because it is a fairly uncomplicated set of requirements or because he has a large firm with specialized personnel who are capable and experienced. But generally, the architect must have help because he is busy in researching building materials, design, and construction techniques. To expect him to be a specialist in several building types is asking too much of him. If he becomes a specialist at all, there is a real danger of his becoming inflexible in approaching solutions.

Who, then, writes the program? Who is the programmer? Perhaps the ideal is reached when the client(or user), the consultant (or specialist in function), and the architect work together. When they do, we find that communications open up, ideas develop, problems are stated and questioned from different points of view. The client has the chance to really express his hopes and his concerns. The consultant is able to bring to bear on the problems his wealth of experience, his trained judgment, and to express the client's needs in terms which are understandable to the architect.

In some cases, the consultant is the means of communication between the client and architect. Just as he expresses the owner's needs to the architect, he can interpret the architect's limitations and viewpoints to the owner. As we become more technological and specialized, it becomes more difficult to communicate across lines of specialization. The architect, in turn, has the chance to learn vicariously, from the consultant or if the research permits from real experience and to achieve an awareness and understanding which enables him to design real architecture.

Communications will be a two-way action in such an ideal team approach. Perhaps the architect will ask questions and direct attention to things which produce environmental improvements. He will try to develop in his client real concern for the character of spaces, for psychological factors, for environment and for "architecture."

Recently, in California an architect brought a behavioral scientist (a professor of sociology) to help program a savings and loan building. The results were stimulating and innovative. Others are establishing techniques for assimilating, recording and charting interrelationships and involvements. One of these, the "contextual map" is described in the May issue of the Journal of the American Institute of Architects by Mr. Harold Horowitz, AIA, who has had considerable experience in programming with the National Science Foundation where he heads the Architectural Services Staff. Mr. Horowitz's article is entitled "The Program's the Thing," and is one of the best I have seen anywhere on this subject. He emphasizes the importance of good programming, and boldly outlines what he sees as requisite information for an adequate job of programming. He says "if programming is to stand to benefit from the behavioral sciences, it must first stand on a firm consensus within our profession." He then points up three areas of confusion and disagreement: (1) Responsibility for the program. (2) Degree of detail. (3) Program format. In his article he gives us an outline which might well be used as a guideline or at least a check list of eleven points which he deems basic information to be covered before introducing the behavioral science techniques. These points are: (1) Objectives of the Master Plan. (2) Special Restrictions and Limitations on Design. (3) Characteristics of the Site. (4) Site Development Requirements. (5) Functional Requirements for the Facility. (6) Characteristics of the Occupants. (7) Specific Facility Requirements. (8) Relative Location and Interrelationship of Spaces. (9) Budget. (10) Flexibility for Future Growth and Changes in Function. (11) Priority of Need Among the Various Requirements.

In the area of mental health, as in few others, the architect needs to share in developing the program. Through the experience of developing program, he learns the characteristics of those for whom he is planning. While all of us know from experience what goes on in a theatre, or school, or airport terminal, there are relatively few who can testify to experience about building for the mentally retarded. It is interesting to note in this connection that when Dr. Chapman was asked to make the New York State Survey on facilities for the retarded, one of his associates moved into a residential facility for the retarded and spent several days living with them. This is the way to really get an understanding of a problem and is much more help than studying the definition of retardation, which is "sub-average general intellectual functioning which originates during the development period and is associated with impairment in adaptive behavior."

As to the specific needs and principles for programming for the retarded, there is little that can be said that has not already been covered by the publications of HEW, particularly "Design of Facilities for the Mentally Retarded" and "Planning of Facilities for the Mentally Retarded." These and the other publications on this subject are "musts" for the architect. But they are starting points only.

Perhaps this seminar could undertake to define minimum standards for an architectural program. Better programs must be written, because this is the way to get better buildings, and we need better buildings. Architecture can make spirited contributions to the better training and teaching of the mentally retarded. Buildings that are delightful, gay, gentle and friendly will make the task easier, brighter and surer for those dedicated to doing this job.

As architects,.we must forever look for deeper insights, clearer understandings, fresh approaches. Architecture by nature and definition is a product of many changing things, economics, society, climate, politics. As Clarence Stein has said "...One can never accept a planning or architectural solution as final. Every problem seems to require a fresh analysis, a new approach, a different angle.... As soon as an idea has become formalized into a rule of procedure, and designers give up the adventurous search, the old solution seems to dry up and lose its quality and clarity."

Architects should get this thought into the program and demonstrate convincingly to the client, that real architecture will come by achieving honest, painstaking solutions to functional, climatic, economic and social problems, and that it will be the product of man's creative genius satisfying simple needs in simple ways, and that we will be satisfied with nothing less.

THE PROGRAMMER AND ARCHITECT IN ACTION

David B. Ray, Jr.
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President's
Committee
on Mental
Retardation

John J. Truemper, Jr.
AIA
Architect,
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Dr. Belinson: Our purpose in these discussions is to bring the programmer and the architect closer together so that they will feel more comfortable with each other, understand each other better, and so that by pooling their resources we can finally achieve structures in which we can effectively operate the kinds of programs we have in mind. Two such professionals, former Superintendent David Ray and Architect John Truemper will tell us how they worked together to plan and build the Arkansas Children's Colony.

Mr. Ray: Our topic implies that one individual is identified as a programmer and the other as an architect. By dictionary definition the architect designs buildings and superintends their construction. The dictionary, however, further defines an architect as one who plans and achieves a difficult objective. In this context, we have in fact not a programmer and an architect but really two architects. One plans a structure based on specialized human needs, the other plans a physical facility to adequately fulfill these needs in the most effective manner. It is relatively recent that "functional planning" has come into being. No longer ignorant of the conditions of mental retardation the architect has turned to the programmer to determine basic philosophy of the proposed operation; to understand the nature and the content of the program to be conducted; to develop a fresh concept in the challenging job of developing plans to achieve the really difficult objective of meeting the total needs for the mentally retarded. Most of us are aware that as public institutions for the retarded have grown in size, new residential housing units have followed a stereotyped design. Such design may have been geared to the needs as they were conceived in an earlier era.

In the past decade it has been heartening to observe the development of new approaches to functional building design and in this the programmer and the architect join hands in arriving at conclusions on physical plant construction which will, environmentally, establish a climate in which programs for the retarded may form and flourish. I think much of this changed approach is due to the influence of the President's Panel on Mental Retardation.

Mr. Truemper: - The dictionary has this to say about programs: (1) a brief outline of the order to be pursued or the subjects embraced; (2) a plan of procedure; (3) a proposed project or scheme; (4) a comprehensive schedule; and (5) a sequence of coded instructions for a digital computer. This implies two programmers, one with an operational background, whom we call a programmer and the other with a planning and construction background, whom we call the architect. Regardless of names, there must be a close relationship between the programmer and architect, a mutual understanding of the other's problems and a confidence in the other's ability. In other words, they must work together in a team effort.

Our architectural firm started work on the Arkansas Children's Colony a little over ten years ago. About 14 months were spent in research, site selection and planning before the first construction contract was awarded. I was brought into the project at the very beginning. I was most ignorant of the condition of mental retardation and the needs of the retarded and therefore embarked on a thorough study of mental retardation in general, and institutions for the mentally retarded in particular. Both of us--programmer and architect--visited 14 state schools for the retarded and collected data, by use of questionnaires, from 75 other institutions in all parts of the United States. Some of the conditions we found were deplorable, with massive buildings; boys and girls regimented into enormous dining rooms and sleeping areas; grounds enclosed by high fences; units so scattered that fleets of cars and trucks were required to serve these units; untrained people serving as house parents, attendants and teachers; institutional clothing for the children; and limitations on visits by parents.

We were challenged to develop a program that would create an entirely new concept in the housing and training of the mentally retarded. Always, with the retarded child in mind, we set out to write our program.

Even though we spent what seemed to state officials a long time programming, researching and planning, trying to work out every little detail of a building use or function, when the construction was all over and the Colony began to come alive, we realized that some of our decisions had been made too hastily with too little knowledge of the subject. Some were caused by changes in circumstances and advancement in technology but some were the result of not really programming enough in depth. I cannot emphasize enough the value of adequate programming. The very first step to better facilities is complete, comprehensive, detailed, well-thought-out programming, always with the retarded child in mind.

Mr. Ray: When we first talked about building the Arkansas Children's Colony we were familiar with the literature which described the educable, trainable and severely retarded child; behavior levels such as levels I,II,III and IV; the profound and severe, moderate, mild, etc., but we decided to have the architect and the programmer go to facilities and actually see the types of children we planned to serve.

Rightly or wrongly we started out in Arkansas to serve the mildly retarded child, not the severely involved. Our reason was that Arkansas had very little special education in the schools for the mildly retarded. So, we pointed out to our architect these were the types of children for whom our facilities were being planned. The architect also consulted with doctors, psychologists, educators, social workers and attendant personnel, since in a sense, all are programmers.

Mr. Truemper: We conceived the ultimate size of this facility to have one thousand to twelve hundred beds. We had money to build about a fourth of these beds. It was decided to construct the first phase for the educable child.

We did develop a master plan for the larger facility but we did not plan for all levels of retardation. We programmed in depth for the educable child but not for the lower level child and that was one of our shortcomings. We spent a great deal of time on what we thought would be the best cottage design within the limitations of the budget. We really did not go into a great deal of research in the educational aspect, which was another shortcoming of our programming. I think that programmers should make certain that the architect does all of these things. It is very important to bring in consultants at an early stage of design.

Mr. Ray:- What does an architect really want from a programmer? Would he like the programmer to talk about his own ideas on design, his ideas on room sizes, his ideas on room relationships, his ideas on building relationships and his thoughts on finishes, both interior and exterior?

Mr. Truemper:- Yes, he wants all of that information. He may not use all of the information but he should have it.

Mr. Ray:- The optimum size of an institution is still somewhat controversial. Some people feel that you can go up to a thousand or fifteen hundred and keep the same quality. I believe that if I had the Arkansas Children's Colony to do over, I would not let it get over 400 or 500. We started out at 250 and when we went from 250 to 412 we lost something. When we went from 412 to 540 we lost something else in quality.

I think you can build another unit elsewhere without any more money and do a lot for the retarded you are trying to serve.

Q. - Are you thinking of the one segment of patients or the broad spectrum in the 400?

Mr. Ray: - For training purposes it is a good idea to have at least one institution in the state which has the full range of services. This would be for research and for training of personnel but I think that you can go to specialized units that might be for the severely retarded; for rehabilitation or nursing homes in larger cities. I think there are a lot of ways of meeting the problem.

Mr. Truemper: - You do effect some economy there in ancillary services, but you are still likely to treat them as a single administrative unit.

Mr. Ray: - Yes, I think this is probably right. You can take a massive institution of probably 5,000 and break it down into small functional units, if you have the proper personnel and I am sure you can do a good job. What generally happens is political pressures want you to make savings and in making savings, it is easy when you have a lot of units together rather than having one attendant for say ten residents they will say, "We have a tight budget; I do not see why one attendant cannot take care of 20 residents" and your quality of service goes down. This has been my experience and this is why I am reluctant to have them get too large.

Mr. Truemper: - If the housing unit is kept small it is rather difficult to cut back on attendants. One of the things that the architect ought to try to do is make the bedrooms big enough, but no bigger than necessary to get that number of beds in, so that they cannot be overcrowded. There is no way to add, not even one bed. Then it is impossible to cut back on staff.

Mr. Ray: - Well, I think it is probably more difficult with respect to attendants but I think you might have a tendency to cut back on education and training staff. I think when parents have a child in an institution they look to the superintendent and the director of cottage life to know something about their child and something about their family condition and when you get too large, you lose that. I think that it is important that you keep a personalized approach to the problem.

Q. - What made you decide to have small buildings rather than the large, encompassing type of an institutional building that we are so familiar with?

Mr. Ray: - We had a Board, particularly a Board Chairman, who was the father of a retarded child, who said "Let us make homelike units where boys and girls can be treated like human beings and not in great, big dormitories." I think the architects were inspired to come up with something that was homelike and still it had to be the type of construction that was low in maintenance and had a warm atmosphere.

Mr. Truemper: There was an attempt to fit the institution to the child. We attempted to create a village setting patterned after the European or a Canadian village. The master plan as evolved, visualized a chapel in the center of the grounds. Around the chapel was the school area and then radiating out from this were the cottages, the homes of the children. We are just now reaching that point. The last contract awarded includes a chapel. It includes a little village square type of arrangement where the children can come for recreation and do a little shopping at their canteen. We built the Colony without streets, we used only wide walks and no automobiles go within the grounds. The staff is not very happy with this. They complain now about having to park and walk so far. We are beginning to get parking lots as satellite units around it but this does not disturb the inner core of the facility. Everything is handled by electric cart along wide walks. We have a central food preparation area, a central feeding area.

Q. - Do you feed the children in the cottage and do you prepare the food in the cottage? And what about washing dishes? Is that done in the cottage?

Mr. Ray: - Some dishes, pots and pans are kept in the cottages, especially in the girls' cottages where they make candy and other things. Many children work in the central kitchen, operate the dishwasher, and work in the staff dining room which is part of the kitchen-food service complex. Some of the children serve the meals in a kind of family style arrangement in the cottages.

Q. How large were the living units? Did your cottage personnel work 24 hours a day or did they work 8-hour shifts?

Mr. Ray: There were 32 residents to a cottage. We tried both house parents and attendants working 8-hour shifts, 40 hours a week.

Mr. Truemper: - On the 8-hour night shift they had only one staff member in the cottage. During the day the ratio was about one to ten. There was also some overlapping of staff.

Mr. Ray: - The cottages were also planned with a small apartment for a house parent. It was felt at the time, that eventually we would go to live-in parents but this did not develop as originally planned.

Q .- Why did you pick Conway?

Mr. Ray: -We actually evaluated 75 sites and we had a check list, with such things as the cost of the site, the availability of utilities, the nearness to a good labor market, the nearness to the medical school, and to a teachers' college. The Conway site was high on almost everything on the check list.

Q. - With increasing emphasis on placement in foster homes, does this not demand that in your planning program you must have flexibility of use for these different buildings, and also for any new buildings you might be planning?

Mr. Truemper: - Some flexibility is desirable but it is difficult to plan a building so flexible that it can be used for most any function. Certainly a school can be used for teaching and training varying levels with only minor modifications. Though we had planned very definitely what we referred to as a Level III cottage and a Level II cottage, we are not experiencing any serious problem of moving the lower level child into what was originally planned as a higher level cottage. We have had to come back and do some refinishing, but that has been fairly minor.

Q. - Has there been much experimentation with co-educational living units for teen age boys and girls?

Mr. Truemper: - The rehabilitation center at Conway has 40 beds--20 for girls and 20 for boys. The living part is broken down into three buildings. One wing is the girls' wing with 2-bed rooms and there is a small lounge-like space for watching TV in pajamas. The central building holds the main lounge and dining room, a recreational area where they do come together for their meals and for social activities. They have dances there, play ping-pong and other activities. They dress for dinner in the evening. These are higher level teenagers in what we call the intensive training period. They are there, generally, from six to eight months. There is a school in connection with it that is actually housed in three more buildings, so you have a 6-building complex.

Q. - How much change is required in staffing and programming the rehabilitation group?

Mr. Ray: One advantage in having the small units is that you can vary the conditions to meet the needs of the children. In a cottage of 32 pre-school age retarded you can have them go to bed at eight o'clock and in another cottage of older children, they might stay up until ten o'clock. You can vary your staffing pattern accordingly.

Q. - Would you talk more about the size of the rooms in your 32-unit building? Also, tell us something about the classrooms in your school.

Mr. Ray: - A cottage that houses 32 is divided into two 16-bed wards. These wards were further broken down with half partitions into groups of four beds. The building was designed so that you could make four rooms with four beds in each room.

The educational facilities have lagged very badly at the Colony. As more cottages were built, the school system was not kept up to date. The buildings are still fairly small. Some of the original buildings were of two classrooms only, each classroom being about 25' by 30' for 12 or 15 children. The newer classrooms are a little larger. We are going to four classrooms to a building. They are interconnected with covered walks.

Q. - Did your teamwork in planning and developing the Arkansas Children's Colony go as smoothly as you imply?

Mr. Ray: - Yes. A lot of the consultation by the architects was done at the Arkansas Children's Colony particularly after the first phase was built. Even before we had the money for the second phase, the architects were on the site working with us to find out how their design was working out. We analyzed the problems in hopes that in the next design we could actually eliminate some of the mistakes. We had many, many hours of consultation together. We visited a good many facilities and talked to a lot of superintendents.

Mr. Truemper: - For an architect a job such as this is challenging and tends to stimulate new ideas. It is enjoyable to work with someone who is creative and imaginative. We have had many knock-down-drag-out sessions but we always come to some agreement in the end.

PLANNING FOR COMMUNITY FACILITIES

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A. Introduction

1. Construction in Texas--During the last ten years, construction volume of mental health and mental retardation facilities by the State of Texas has averaged approximately six million dollars annually. At this moment, there are 43 projects totaling 22.7 million dollars under construction or on the drafting table, fully financed and moving toward occupancy: 17 of these totaling 17.8 million dollars are for mental retardation facilities alone. Included are two comprehensive community centers, the start of three new state schools, and extensive expansion plans at another.

2. Pre-planning Efforts--Last summer, in preparation for submission of our Department's biennial capital budget request to the state legislature, 86 projects totaling 84 million dollars of construction were programmed, planned preliminarily, and estimated; 43 of these totaling 32.6 million for mental retardation facilities. Twenty-five architectural firms were involved in this effort!

   This program of construction and the facilities being planned are further implementation of the changing philosophy of service to the mentally ill and mentally retarded in Texas.

   The new residential facilities for the mentally retarded are being planned around a program of service not only for the residents, but also for part-time and day students who live at home, along with a total array of other services to meet the needs of the region. Too, several single service and comprehensive service, community-based day facilities are programmed to serve as models for groups and organizations interested in initiating similar programs.

   These efforts, coupled with our mandated state policy of encouraging communities to accept responsibility for providing services, and the administration of Public Law 88-164 projects, where we have 17 on-going projects, and a reservoir of knowledge and experience of our very able and young leaders in the department, provides an unparalleled opportunity for experience in programming and designing facilities for the mentally retarded.

3. Feedback--Contrary to popular belief, Texas is not

blessed with unlimited resources. We therefore have to battle for every construction dollar, squeeze out every possible square foot of uncritical space and increase the functional qualities of our buildings to the limit, just like everyone else. We do not hesitate to seek ideas from every source, including the people on the service line, the attendants and trainers, for better ways to increase efficiency in buildings.

B. The Problem--A Needed Facility

1. Leadership--Most laymen, and most architects are completely unfamiliar with the complexity and variety of the problems associated with mental retardation unless some member of their immediate family is retarded. Most administrators and leaders in the field of delivering services to the mentally retarded are so burdened with too little money, too few qualified personnel, too much overcrowding and too many immediate everyday problems with children and their parents to find the time to concentrate their thinking on planning. It is only with the help of dedicated, able leadership that the planning process can lead to successful facilities design.

2. Determination of Factors Necessary to Planning--The first step in the procedure of planning for a facility involves the determination of several factors:
   a. A determination of what services are to be provided, for whom and in what quantity.
   b. Availability of funds for both construction and operation.
   c. Availability of manpower for staffing.
   d. Coordination with other health services in the community or service area.
   e. Site location, restrictions and accessibility.

   If the conditions in your areas are anything like those in most areas of Texas, the need for services beyond those already offered is so great that the question of what services, for whom and for how many is almost completely academic. Only 18 per cent of the needs in Texas are being met. There should be one diagnostic and evaluation clinic (handling an annual case-load of about 200), three day-care centers (each serving 200 retardates) and 1 1/2 residential facilities (each serving 500 retardates) for each 100,000 population.

   Thus, in most cases the determination for an individual facility rests upon whether to provide all services for a few or a few of the services for all. The other factors listed become paramount in the decision.

C. The Program--A Statement-- The second step in the procedure of planning for a facility involves the preparation of two programs:

1. The Operating Program which outlines the general philosophy of the facility's function, the services intended to be provided and their quantity.

The Architectural Program which describes in general terms the spaces necessary to permit the operations outlined in the operating program.

Since the need for and preparation of these two programs has already been most adequately described by previous speakers, let me merely reinforce their statements by appealing for clarity and completeness in their preparation. It is not a simple task, and cannot be turned over to subordinates.

D. The Design--A Solution--With steps one and two accomplished, we are now equipped to begin the third step; the process of design.

Please consider the following suggestions as devices or tools which may help you in your work. We have found them to be most beneficial.

1. The Space Element--A Design Tool--Like most other buildings and facilities, those for the mentally retarded are composed of certain elements, varying in function, in importance and in relationship one to another. These elements have particular requirements, such as: space requirements, fire and life safety requirements, and functional requirements of the finishes, equipment, fixtures and appurtenances. Since we are considering primarily the design and arrangement of space, we will discuss only the first of these--the elements of space.

Most often, when a person first directs his attention to the problem of preparing an operational program, an architectural program or even the design of a facility, he first considers the major elements. In an operational program for a mental retardation facility, it is the service elements, such as diagnostic and evaluation, consultation, treatment, education, training, custodial, sheltered living and workshops, administrative, dining, recreation, etc.; in an architectural program, it is these same major elements plus the desired approximate area requirements of each; In architectural design, it is these same major elements, represented by titled squares or circles plus an indication of the desired relationship between them. Then he proceeds to break down these major elements into components.

However, when an architect begins the real business of detailed schematic design, he reverses the process and starts with the design of the smallest element of space in each function, such as a room, giving it the approximate desired size, then adding supportive spaces, related spaces and so on to achieve a functional unit or component. Then he puts several of these together to achieve each major element and the square or circle referred to becomes a dimensioned building block to be pieced with others in a logical arrangement to form the whole. The "whole" can be a single building, or several buildings physically tied together or connected, or a campus of many buildings.

Our procedure then is to break down the elements of service into space units, starting with the smallest unit in each category or function. This method not only serves as a suggested approach to design, but also provides the designer with tools which aid in achieving the most logical and efficient arrangement. Add to this the ingredients of research, advice from experts in each function, and leadership to direct the course and select alternatives and the end result will be successful.

The breakdown of service elements into space units that we have found most successful is as follows:

a. A Categorical Space Unit--The smallest unit of space with a single primary function, such as a single office or a training room.

b. A Functional Component--A combination of several categorical space units and/or with its supportive spaces, such as a group of offices with secretarial space or a training room with toilets and storage space. This component is the key unit in the design.

c. A Service Unit--A combination of several functional components, maybe similar, maybe varied, with the unit's supportative space, which comprises a major service element, such as a diagnostic service for a training service.

d. A facility-- A combination of major service units plus the facility's supportative spaces, such as food service, mechanical rooms, storage spaces, work spaces, maintenance shop, and so on, become the complete facility-- either a single building, connected buildings or a campus of buildings.

2. Characteristics of the Functional Component-- Since the Functional Component is the key unit of design, we concentrate on achieving a degree of perfection in each different one before plugging them into the service unit, such as maximum utilization of floor space. optimum flexibility of arrangement, desirable evironmental characteristics, satisfaction of functional requirements, recognition of new methods and new techniques of activity.

   It is here that we seek help from an expert in each particular functional category, such as the teacher, the vocational trainer, the social worker, the dentist, the therapist, the psychologist, the doctor, the administrator, and the service chief.

3. Relationship between Functional Components and Service Units-- The next two steps in the design process involve arranging functional components into service unit and arranging service units into a facility, each time adding the necessary spaces to complete the whole. Here again, expert help and leadership play an important role in achieving the optimum relationship between elements.

4. The Building-A Design Solution Perhaps a Beginning-- We now have reached the first plateau in the design process: the first trial schematic floor plan, a pictorial delineation to scale of the entire facility with its categorical space units, its functional components, its service units, all arranged in workable relationship to form the whole.

5. Other considerations- We are now sufficiently familiar with the various elements of space and their area requirements and, hopefully, somewhat familiar with the problems associated with the mentally retarded and their care, treatment, training and habilitation, to consider a second set of requirements:

a. Fire and Life Safety-- Use of nationally recognized standards and codes is strongly recommended.

b. Flexibility of Use-- We must establish a given set of basic criteria or characteristics for design purposes, but we should also allow, wherever possible, for changes in use within each functional component.

c. Multi-purpose Areas - A space used only portions of the day or week is costly and inefficient. Alternate uses should be considered.

d. Changing Space Requirements -- It is recommended that consideration be given to permitting future change with a minimum of cost and effort.

e. Expansion Capability -- Merely the listing of this capability is considered sufficient.

f. Changing methods and Techniques-- If we know what the trends and methods and techniques of care, treatment, training and habilitation are, we can give such factors consideration in the design. On the other hand, if such factors are either undeveloped or unfamiliar or if they are allowed to influence disproportionately the planning process the results may be disappointing.

g. Functional Requirements of Finishes, Fixtures, Equipment and appurtenances-- These requirements are varied, detailed and multitudinous. Familiarity with the problems imposed by the mentally retarded on these features of a building can be gained only by persons closely associated with them.

h. Innovations in Design-- Please consider these suggestions as something to build upon, something that can be bent into different shapes, something that will kindle the urge to create more useful structures.

E. The Operation-A Service by People-- The programming, planning and construction of community facilities for the mentally retarded is a demanding and important assignment. The building itself, the individual spaces and the environment they create influence to a considerable degree the activities carried on within the walls.

But should we place too much emphasis on the environmental climate, should we get carried away with the importance of this assignment, should we consider our buildings as being the primary ingredient in the delivery of services to the mentally retarded? There is an even more important, overriding theme that brings us back down to earth. It is the people who play the role in serving the retarded--trained, dedicated people.

The building is important only to the extent that it helps these people to perform their difficult task for those less fortunate than ourselves.

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THE PROGRAMMING PROCESS

Two years ago, my partner Robert H. Chapman signed a rather unusual contract with the State of New York. He is an architect who was trained as a doctor, and he agreed to take a very comprehensive look at their planning process in the context of three new institutions; one to be built in Brooklyn, one in Syracuse, and one upstate in New York at Wilton. He was naturally overwhelmed by the scope of his problem and he asked me to help him out. I am also, an architect. Neither of us had any direct experience with planning for the retarded. Chapman's background was mostly in health facilities and hospitals, and my planning experience with universities.

I mention this as a point of encouragement for those of you who are architects and find yourself as a component part of the planning process. We approached this with a great deal of trepidation and subjected ourselves to a mild version of systems analysis. We made an activities list covering the facets of the problems which we should take into consideration. This activities list comprised about 150 activities and it gave us a good start in providing an inventory of those things which we thought should be considered on the basis of previous experience. Such an inventory is what we have been talking about the last two days and for that reason I think it would be useful to review the steps that we went through to illustrate how this terribly complicated group of considerations can be reduced to some order.

As general consultants, we made the usual sacrifice of not becoming an expert in any particular facet of the problem but hoping that our ability as synthesizers of the many aspects of the problem would make up for the fact that we were expert at none. So, one of the first things my partner likes to do when he gets a new job is to hit the road, particularly if it leads to sunny California or parts abroad. He happened to be at a Stockholm medical conference and had the opportunity because of that, to see the institutions in Denmark and Holland. In short, he started with one of the most attractive and successful situations for the retarded in the world and he was so excited about what he had seen that he sent me a wire from Denmark stating that he was greatly encouraged about the whole project. He said the severely retarded were living almost like ladies and gents in delightful cottages.

Meantime, I felt that I should see what was considered to be a disaster area of care for the retarded. By the time I reached that conclusion , I had become a very good friend of Dr. Jack Hammond, the then recently appointed Director of Willowbrook State School, the biggest facility of its kind in the world (6,500 residents). It was a place which through no particular person's fault had come to include some of the most extreme aspects of custodial care. I spent three days on the wards as an attendant, and as a person who worked with the front line troops right in the wards.

It was the dual experience of having seen some of the most attractive solutions in treating the retarded and one of the very grimmest that really gave us the courage to tackle this big job.

So, in terms of our activities list and our rather amateur systems analysis, we said to ourselves, "What first, what second and what will go on simultaneously?" We decided to chop this big problem into six major parts in terms of our final report. I would like to go through these parts, one by one, and give you a summary of what they involved and of our conclusions for each part.

The first part we called "Life Services". My partner said, we will write a n ovel about Mr. A., Mr. B., and Mr. C. from birth to death, imagining a severely, a moderately and a very slightly retarded person and carry them through, in our immagination, every kind of service they would need from birth to death." This gave us a second kind of inventory. because by having three specific people (A,B, and C) to think about we were able to inventory the kinds of services a person would be likely to receive, might need, and was not receiving. That made us realize very quickly that the State School was simply a component part of this whole spectrum of services. We had proved it on paper to ourselves and we finally understood it after going through this procedure. We developed a methodology for struggling with demographic projections. We also found that we had to invent, to some extent, a new methodology. At any rate, one of our conclusions from coping with "Life Services" was, that if straight-line projections were made of present existing admissions patterns, some sort of statistical disaster was on the horizon. That led us very quickly to the conclusion that, as a component of services, the role of the State School would radically shift during the next 20 years and that, if the retarded are to receive services, a much greater reliance upon what is provided by other components in our society would have to be made than is presently the case. We found some curiosites about heavy population poverty areas such as Williamsburg, Bedford-Stuyvesant, Brooklyn, Harlem, etc. Demographic oddities appeared, the principal one being the undiagnosed familiar category. On a percentage basis, not in terms of the straight numbers, there was a discrepancy between the poverty areas and the rest of the state. Our conclusion from this was a fairly obvious one, although we felt we had some basis of proof that in poverty areas the State School system was acting as a welfare agent in a peculiar sort of way. Because of malnutrition, because of understimulation, because of conditions leading to autism, which we associate with poverty, the poverty areas presented unique problems in programming.

The next major component of our attack on this problem was called "The Resident and Program." We considered this at the same time we were worrying about the Life Services. We felt that there were no existing standards for really coming up with square foot criteria. "What do we have to do to get standards that will convince us enough so that we are willing to write them down and submit them?" We said, we have been to Willowbrook. "We will start with the retarded person." We received a great deal of help in this process from a clinical psychologist in New York City. Not only were we not satisfied with the five categories of the retarded which are now current, but we found it necessary to produce 15 such categories in order to get the level of fineness that we wanted for programming purposes. We identified 15 types of retarded persons and we identified seven types of therapeutic programs to serve the 15 types of persons. By cross-indexing we produced what we call a programmed day -- a hypothetical day in the life of an institution.

Now, derived from the assumption that each person in an institution would have a designed program just for him, we were able to move on to what kinds of manpower were implied by this assumption. It was a fairly far-reaching assumption because I do not think we have to conceal the fact that in most state institutions the concept of having an identifiable, individual, variable program for each resident has not yet been accepted by the taxpayers. With our programmed day we were able to devise staff ratios, starting at the bottom with the attendants, which we used as a basis for staffing recommendations. Essentially, our attendant ratios were one to eight for the younger people and one to twelve for the older with variations among those who are more or less disabled.

Having come to conclusions on manpower and staff we projected ourselves into the problem of how to get this manpower,what to do with it, how to recruit it, how to encourage it, how to provide satisfactorycareers for the people who would execute the program day. What does it imply in terms of education? What does it imply in terms of the Civil Service laws, etc.? We made recommendations on these matters. Two items from that whole inventory are worth mentioning. One, we conceived of the attendant as a sub-professional who would be a generalist and who would be offered the opportunity of educating himself on the job. He would become a generalist by leaving the bedroom area and the living unit area with his patients and following them each day through their teaching activities, their physical therapy activities, their recreational activities,etc., and making himself familiar with the techniques of the specialists who are providing these functions for the resident. This implied that the chief role of the attendant would cease to be that of a "mop man" or"policeman" in, let us say, a severe ward. And that assumption led us to another assumption,that we would provide the institutions with professional cleaning services. I want to keep emphasizing that all the conclusions we came to in terms of space, in terms of architectural requirements, in terms of dollar figures, derived from the program for the individual resident. That was the starting point for all conclusions. So you can see how these things would extrapolate out from that point. Interestingly, my partner having been trained as a doctor felt that there should be a shift in emphasis regarding the medical staffs of the state institutions, where MD's have been involved to a great extent with the very difficult problems of what you call "daily maintenance." He felt that the medical staff could be reduced and should be used for medical purposes only, not administrative purposes; that as many strictly medical purposes as possible required by an institution should be purchased on the outside. That is a rather interesting concept and one of our conclusions.

Now, having established some demographic assumptions, having inventoried life services, having come up with a programmed day that we believed in, and, above all, having convinced ourselves that it is possible for each retarded person to be modified in his behavior, no matter how severely retarded, we then were willing to derive space standards and architectural recommendations. We did this with what I call a light touch. We did provide guidelines which we felt to be valid, and we did set up certain square foot requirements which were quite specific. But what we were interested in, was giving the option to a creative architect of taking these guidelines and making architecture out of them. We drew no plans. We did draw some relationship diagrams.

I think that possibly I should mention three items from our architectural recommendations which might be slightly out of the ordinary. Because of our staffing recommendations having to do with the attendant as a generalist and our ideas about the specialists blurring their displinary lines, we felt that interaction between staff people was very important. We felt that the living unit, the place where the children sleep and take some of their meals, should be abandoned most of the day, particularly for the higher IQ groups. Even the severely retarded should spend at least four or five hours of a typical day, or half of a typical 40-hour week, away from the living unit in what we termed "habilitation spaces," spaces where, for instance, very high-pressure physical therapy takes place. In order to serve those habilitation spaces we decided to include a giant supply depot which would be a feeder of equipment and special devices to a generalized series of spaces. This was an effort on our part to achieve flexibility through an organizational idea whereby the teaching components and the habilitation spaces and even the workshops could be shifted from one use to another on at least a weekly basis. These might also be easily shifted from one use to another on a yearly basis as the population makeup of an institution changed.

A third notion was the idea of emphasizing the importance of circulation spaces by attempting to make a genuine even therapeutic experience out of the facts of life about circulation. We recommended a cohesive, rather tight plan, for several reasons, even on a big site. Within the idea of this village-like, rather than suburban-like density, we felt that a main street or a piazza (part of the circulation) would be a good idea. This would be a place where a lot of things go on, establishing a genuine series of options and changes of experience for the child. In other words, we would use circulation space for other things like a band concert, movies on Friday night, chapel, Christmas parties, etc., for the larger gatherings of the institution.

We felt that the above three sections of work generally applied to all three of the institutions with which we were commissioned to work. Having established some general principles in the first three sections we then went into the specific region involved, the region of Syracuse, the region around Albany, and the region of Brooklyn in Kings County. We took the life services approach and applied it as directly as we could to the particular region we were going to discuss -- first in general, then in particular. Again the demographic applications were in some way the most difficult, especially for Brooklyn. On the basis of our assumptions, we derived figures for each of these three regions and were able to produce a typical programmed day for the institution, which would be in each of these three regions. From that, we were able to provide the particulars of the staffing pattern and the staff requirements. These particularizations occupied sections four and five of the reports. Section six was devoted to a bibliography and various appendices. We were writing both for our own continued use and also for our fellow architects, so that they could quickly establish a geberal feeling for the nature of this problem.

We made one other effort that was not successful. It was not successful, partly because we did not complete it, partly because we could not as two, three or four people working on this problem undertake a project of this scope, but I would like to describe it to you because I think it has to do with a lot of things that the architect worries about. The activities list that we made at the very beginning included an investigation of ways in which the degree of patient sensory and motor ability might affect: (a) architectural specifications, (b) spatial qualities, (c) orientation of buildings, (d) qualities of outdoor spaces, (e) relationship of seasons to architectural design (that is a fascinating one), (f) relationship of times of day to architectural design, (g) mobility of patients in various categories of retardation, (h) options for what can be touched, seen and heard, and (i) options relating to gravity.

The School of Environmental Research at the University of Michigan has been publishing a lot of raw material under the auspices of EFL. Perhaps you have seen the three volumes that summarize scientific papers, that are given in the areas of behavioral psychology and the behavioral sciences. We attempted to cull these raw materials and derive some specifics from these standards. This was much too ambitious a project. However, this kind of benchwork correlating what is going on in the behavioral sciences and what we architects know and do not know, should be encouraged. There is very little hard, provable, or even discussable, scientific or para-scientific information regarding these areas for normal people, let alone for those who are psychiatrically disturbed or retarded. There are a lot of opinions, but most of them are subjective.

This is the process we followed, as a case study I thought it might be of interest to you.

DISCUSSIONS

The following are excerpts from informal discussions and from five seminars in which all registrants participated.

PROGRAMMING AND PLANNING CONSIDERATIONS

What is likely to affect architectural design?

A number of important variables will affect the architectural design:

a. Self-care training

b. Stimulating environment

c. Personal care

d. Medical aspects

e. Family and visitor facilities

f. In- and out-patient load

g. Patient characteristics, including (1) IQ level, (2) Adaptive behavior, (3) Mobility, (4) Chronological age, (5) Sex, (6) Social level, and (7) Vocational potential.

h. Staff

i. Food, clothing and shelter

j. Traffic patterns

k. Budget

Should the architect be consulted on site selection?

An architect is a very important member of the site-selection team. Often, the architect is asked to evaluate a proposed site with respect to services, transportation, underground utilities, and other factors. If an architect is neither involved or consulted, the consequences can be costly.

Should the new facility be placed near the community?

Volunteers play an important part in running a facility, from ordinary citizens to physicians and dentists. These people always play a large part in public relations and while it may be expensive to build in populated areas, the convenience of less traveling time for volunteers will pay off in less transportation of patients, more volunteers and in easier labor problem. A facility should not be located too far away from the area it serves, for the convenience of the family and for effective use of generic services and facilities.

It is hoped that many of these facilities can be integrated with existing city or community facilities such as schools, playgrounds, etc. A college or university in close proximity is considered a very desirable asset. The facility in a larger community will offer more opportunity for employment for those needing sheltered workshop services.

Staff normally gravitates to newer, more-up-to-date facilities. Sparsely populated areas have trouble finding personnel and must recruit from other areas. Manpower requires adequate recruiting, which means not only the professionally trained, but people with native intelligence and warmth who can be trained to work with professionals.

Should staff live on or off grounds?

The concept of live-in-house parents should be discouraged because employees must get away from the situation in order to do the most effective job. It is possible that the house parents would be satisfactory in a "half-way house" situation. There is a trend to have all of the staff live off the grounds. There is a phasing out of staff being as isolated as patients and of moving both staff and patients into the community as much as possible. Farms are also being phased out.

What mixture of levels of ability or disability might be feasible in the living unit?

Our 15 groups (Garber/Chapman classification) made a rather fine distinction between different sorts of ability or disability. Our proposed personnel program, with all it implied for the attendant, the program designer, the group supervisor, etc., led us to believe that instead of isolating different diagnostic categories in large groups, it would be better to have a more heterogeneous group at the living unit level than has been assumed in the past, not only with respect to ability but also age. We felt that under many circumstances the large infant wards which you see in a typical institution could be partially or greatly reduced by distributing these infants through the living units where some of the older patients could help take care of these younger children and have a sense of possession about it. In other words, this is an effort to achieve some of the circumstances of what is termed "family life."

Should there be one-story or multi-story buildings?

Situations will differ. In some instances the multi-story facility in an urban setting will provide better use of personnel.

Two story buildings for ambulatory patients should not have an elevator (recommendations by Dr. Tesse) in order that the residents will get the needed exercise and stimulation. However, there would have to be an elevator for food, laundry, etc. Also buildings should not be built without facilities for all types of patients as their use might be changed at any time, particularly to care for non-ambulatory and senile patients.

Can you put the retarded in elevator buildings?

I think the answer is "yes". We, (Garber/Chapman) felt in Syracuse, where the site was very tight, there was no reason why we could not put a good many of our 15 types of retarded in an elevator building. In fact we felt it would be very good training for the residents as they get older, especially for those who are going to be out and working either part time or full time. A typical example of the working retardate would be a delivery boy and, in any urban situation, he has to know how to use an elevator.

Under ideal conditions would you prefer to see buildings on one level?

No, I do not think so (Mr. Garber). We felt children ought to go up and downstairs where at all possible. Some of them will learn to go up and down stairs. They need as much stimulation as possible and this is just one of the many components of our feeling that you cannot have too many experiences which will stimulate the body and mind.

I am very fearful (Dr. Dybwad) of elevator buildings at the present level of staffing. I have absolutely no objection to an older ambulant group in any kind of elevator building - those who are free to come and go. Those who have to be escorted by attendants will simply be locked up upstairs and this has been my universal experience in such institutions. For the very young children it is essental that they have easy access to the outdoors. Like the young child in a normal family home who runs in and out to go to the toilet, these children need the free access in and out and also need to be in a situation where the staff can supervise a group, some inside and some outdoors. With the present level of staffing, quantitatively, we cannot cope with high-rise buildings for children, I am afraid.

Certainly the physically handicapped in wheel chairs are more easily accommodated in buildings at grade level. Evacuation in case of fire or other emergency is more efficiently accomplished.

Should everything be under one roof?

It is a good idea to break activities down to smaller components so everything is not under one roof. It is important that children's units are separate buildings and that a child is given the opportunity to move from one environment to another. Consideration should also be given to staff and to climate and available land. Interaction between residents and staff is important. In areas where large snowfalls are encountered, putting on overcoats and snow shoes several times a day is a burden.

What are some of the factors to be considered in planning for the future?

This necessitates looking at the basic population to be served. Demographic studies in the State of New York led to the hypothesis that approximately two per thousand of the general population will need some kind of residential care.

Presently, facilities and services are provided for about 1.5 per thousand of the general population. The state now cares for approximately 27,000 in institutions for the mentally retarded. Population trends are projected as far as 25 years into the future. Studies are being made of the value of real estate, buildings, utilities and tools in order to find a basis for amortizing the value from the standpoint of building codes and program effectiveness. Most of the present capital programs can be written off over a period of time. If the reduction in existing institutions can be plotted, then the necessary increase in other new central institutions or other alternative residential programs can be determined. A totally different distribution of facilities from what exists today is envisioned. Institutions are now quite far away from the centers of population from educational resources and other community facilities. Envisioned is a distribution which will cluster about the centers of population and educational resources.

How long do we want buildings to last?

Many of the buildings in our institutions for the retarded are no longer suitable for modern programming and should be demolished. However, it is difficult to convince the legislators and taxpayers that structurally sound buildings should be torn down. Because of code requirements, it is likely that buildings will continue to be"built to last", but as increased attention is placed upon "quality of programs" perhaps the life of the buildings will become somewhat shorter.

Can new building technology help in reducing costs?

There are several examples of new technology that may very well assist us in the battle of rising construction costs: (1) electrical heating, which is becoming competitive in many regions; (2) pre-prepared convenience foods systems which reduce labor and space requirements through the use of automated electronic equipment; (3) mass-produced elements.

Much can be learned from HABITAT '67, an experimental apartment house constructed of individual residential units of pre-cast concrete. The bathrooms in the units were made of fibreglass, molded in two pieces, including the tub and lavatory, with all plumbing pipes and electrical wires integrated into the walls of the room. The bathrooms alone cost $5,000 which is more than convential costs; however, the manufacturer is now producing them for $800, and hopes to produce them for $500 soon. The residential units cost over $40,000. Technological experience gained through the project alone will result in lower cost efforts in many ways. Unfortunately, archaic building codes, obstinate unions and skepticism, are serious obstacles. We must take the time to overcome such resistance if we expect improvements and progress. The battle between the building trades and the architects must be resolved in an effort to reduce costs. Because of rising building costs it is impossible to predict construction costs. Architects feel they cannot be held responsible for the cost of the buildings under these conditions.

What constitutes good programming for the residents?

Get them out of the wards, get them into the habilitation spaces wherever possible, move them from ward areas into habilitation for physio-therapy, education, recreation,etc. Chapman and Garber brought this concept out very nicely. The idea is to move the residents from the small living area or ward, into the living room for 24 (three groups of eight), and then move them into the larger world of the whole institution. To little youngsters it is the home, then the neighborhood, then the community, the state and the nation.

What Category of resident is anticipated for the future institution?

Consideration must be given to what the future population of the facility will do. Regardless of immediate need, the facility should be geared to take care of more severely retarded since it is assumed that communities will eventually care for trainable children. In planning now, flexibility must be kept in mind for eventual care of severely retarded and multiple handicapped.

EDUCATING THE PROGRAMMER AND THE PLANNER

Where does the architect get his information?

From members of the institutional staff, parents, volunteers and residents. All of these sources should be fully utilized by both architect and programmer. However, there needs to be someone designated as the programmer to work with the architect on the coordination and intrepretation of program needs and program information. This may be the superintendent or someone else with broad knowledge, insight and experience in planning programs of residential care for the retarded. Architects should familiarize themselves with the general needs of the retarded, but it is up to the programmer to interpret to the architect the specific needs of the retarded.

A well-written, concise statement of program goals and needs should be available to the architect. The kinds of individuals for whom the facility is being designed is of prime importance, e.g., age groups, sex, degree of retardation and how many people will be housed in the building. There must be a good plan, one that cannot be changed easily. The programmer also should indicate the various exceptions to normalcy, physical disabilities, and kinds of activities that take place in the different areas. Also the architect must know the services to be provided, including social, psychological, educational, medical, vocational, and workshop programs. On the basis of such a statement, the architect can make a fairly accurate estimate of cost, including cut-backs when necessary, or the need for additional funds.

Various staff members who use the buildings on a day-to-day basis also should be involved in the planning process. Their thoughts and suggestions have in the past proven very important. They are in a position to pinpoint specific problems which may be overlooked by the programmer or architect. Facilities will be more properly used by staff members who have contributed to the over-all plan.

How important are visits to other institutions by architect and programmer?

Visiting facilities is an essential phase of the communication between architect and programmer, but visiting facilities in one's own state is of greater benefit than traveling around the country. Conditions, architecture, and environment vary so widely in certain areas that a well-functioning facility in Arizona would not properly "belong" to the environment of New Jersey or Washington.

Architects and programmers must be on guard not to adopt outmoded ideas and philosophies. They must differantiate between good and bad if they wish to profit from the visits.

Can research data be made available?

The Development Group of the Department of Education and Science in England is a group of architects, educators and sociologists numbering approximately twelve. They research the design of facilities for the retarded. They then produce and distribute a brochure explaining what research they have done. The school is built within the standards indicated by their research. Then another brochure is produced and distributed so that the whole country can gain knowledge from this research. It was suggested that perhaps our government could follow this excellent procedure and research of this type. One of the greatest problems seems to be lack of source material and lack of communication about it. Government or private Foundations should make funds available for the preparation of literature in this area.

A directory on research in this field in the United States is issued by the "Research and Design Institute", P.O.Box 307, Providence, Rhode Island.

A study should be conducted on materials and functions (for example carpeting as it affects wheel chairs), as well as building codes. Guide lines should be compiled to which the architect can refer.

What can be done to provide a firm basis for planning?

The architect should analyze how present facilities are being used and how they may be better utilized before getting involved in design for a new facility. You have to talk to people who are actually working in the facility.

In Georgia a project architect is chosen well in advance--before the project is funded. The programmer may spend a year in the architect's office before complete communication can be achieved.

A basic functional program should be worked out before the architect arrives; the staff must agree on what to tell the architect; the architect should see as many facilities as possible.

CATEGORIES OF RESIDENTS

What are the 15 categories of functional groups as outlined by Garber and Chapman?

Category 1: These are extremely handicapped persons who are neurologically, orthopedically or emotionally impaired. There is little indication of their ability to respond to the environment nor are there any clear signs of "awareness." The group includes those who are unable to raise their heads or move arms or legs spontaneously, as well as those who have not learned to stand, creep or crawl. Others of this group seem to be autistic and do not react to stimuli of the environment but may wander. Although their movement is spontaneous they need to be led by others. The category also includes those who do not show spontaneous movement but who may be induced to move reflexively or with help. At present, prognosis for the group is problematical. Change in these persons can be expected in some proportion to the amount of activity-input by staff. We attempted where possible to avoid the IQ designation. In the behavioral sciences there is a great deal of distrust now in using the IQ categorization that has been accepted for the last 30 or 40 years.

Category 2: These individuals show some signs of awareness and are able to follow some direction. They move their arms and legs without help. They may be able to crawl or stand. They will move a part of the body when directed to do so. Wanderers and hyperactives may be in this group. These will respond to some direction. Neurological, orthopedic and emotional impairment is severe but not so extreme as in Category 1. Toilet training can be accomplished. Prognosis in this group is a little better than in Category 1, but still problematical. Changes can be expected in proportion to activity-input by staff.

Category 3: These individuals are capable of following instructions and vocal directions and can accomplish the minimal activities of day-to-day living, if provided assistance in learning how to proceed. Some in this category will be capable of verbal communication and will have developed motor and sensory abilities to a fair extent. In the community, these children are in the classes for the trainable mentally retarded. They usually test in the 35 to 50 IQ range, but some of those testing below this level are included if they function in general according to the description above. Present prognosis is for lifetime dependency. With continuous supervision some may move forward to more independence if emotional or orthopedic problems are reduced.

Category 4: These individuals are "aware" but appear to be sluggish and slow moving. They do not develop beyond minimal levels of verbal expression. Some may learn to write their name. These usually are categorized as the moderately retarded. In the community they are found in the lower part of classes for the educable or the upper part of classes for the trainable retarded and are often included in special recreation programs. Their dexterity may be fair, although impaired by problems of physical coordination. Limited attention span is also characteristic.

Category 5: These are educable persons who are mildly retarded. They are able to learn in special education classes. They can follow direction and supervision and can achieve some level of general education at a reduced rate of learning.

Category 6: These are similar to those in Category 5 but older -- 14-17 years of age. They are good candidates for prevocational training and elementary vocational experience. They should be candidates for community placement.

Category 7: Similar to those in Category 1 but older. Category 1 was the starting point with the extremely handicapped, neurologically, orthopedically or emotionally impaired. Physical deformity may be greater than in Category 1 because of atrophy through disuse. If you are building a new institution you may have relatively few. They are found typically in an older institution and that makes them a peculiar category of people who have been in bed for 20 years. Prognosis for change is poor but activity, nonetheless, is required to prevent further degeneration and intensification of secondary pathologies related to disease.

Category 8: These are similar to Category 2 but older -- individuals who show some signs of awareness. Many are semi-ambulatory with severe joint distortions and contractions. The autistic and wanderers continue to wander but may respond to some vocal direction. The hyperactives will sit and follow verbal directions from time to time. Prognosis is for lifetime dependency. Programs should be directed toward maintaining whatever abilities the individual may already have and toward advancing him to the greatest extent possible.

Category 9: These were similar to Category 3 but older -- capable of following instructions, They are toilet trained and able to dress themselves to some extent. In the community individuals in this category might be found at occupational day centers. Present prognosis is lifetime dependency with continuous supervision.

Category 10: Similar to Category 4, but older. Though of low verbal ability their performance can be developed at the level required of sheltered work. Some are capable of working productively under good supervision. Of these some may be able to work for pay. We considered this an important turning point in categorizing people. Probable IQ 50 to 69. Prognosis for some movement into competitive community. All in this category should have pre-vocational training.

Category 11: Similar to 10. Their work performance will exceed their verbal ability. They may need help with money and personal matters but are often independent in other activities of daily living. They learn to travel locally and carry out a day's work. These would be a typical category -- (10 and 11) for high-rise living in an urban situation. Some in this category may achieve higher levels of sheltered employment. Others will only be able to accept minimal levels of competitive employment. We tried to make that distinction.

Category 12: Included in this are those whose abilities are borderline for competitive work with a fairly well developed social awareness. Many are similar to school drop-outs and illiterate individuals in the community. This is where you begin moving from your 1% to your 3% and would include a lot of poverty area retardates. Prognosis for discharge into the community is at least fair. They will continue to require assistance in the management of their personal affairs and the handling of money. Again in these categories -- 10,11, 12,13, 14 and 15 -- the community services become acutely important.

Category 13: - - These persons are capable of living in the community and functioning there competitively. Age is a consideration for those in this category. The younger ones might live at the institution and work away from it. These will require less assistance in personal management than those in 12. Many will be able to manage independently.

Category 14: Those in this category are competitive and able to work for pay in sheltered workshops. They may show more social ability than others but may still need some forms of guidance. Probable IQ's 70-75.

Category 15: Older members of Category 14. These persons have more competitive ability and a higher degree of social adjustment and so can be more easily absorbed into the community.

The seven types of programs that would correlate to these 15 types are: threshold activities, recreational activities, developmental physical activities, supportive activity, education, pre-vocational training, and work-for-pay.

SIZES OF RESIDENT GROUPS

What is a good group size for training purposes?

Dr. Jubenville works with units of six children to one staff member. The public school in Delaware also uses groups of six. Dr. Tesse has a section of 50 severely disturbed brain-damaged children who are divided into units of ten to one staff member. Sufficient staff is an absolute necessity. Small groups are conducive to a more personal relationship and a closer interaction.

How large should the classrooms be?

Our present classroom procedure with a large number of children is highly wasteful, and we would do better with intensive instruction. Of course, this assumes that when a teacher releases children they are returned to some stimulating environment. There are some people who already have done this. In Denmark, in the "green" schools (shown on slides) every classroom is divided. They have in back of the classroom a small room, separated with a half-glass and half-solid partitions, where the teacher can work with two or three children intensively. At the same time, she is able to observe the rest of the class, engaged in some general activity that could easily be supervised by a teaching aide. Much can be said for intensive instruction under these conditions. But in a general classroom with the usual number of children in it, nothing can be done.

In many of the school systems, the classroom space for retarded children is almost double that for normal children. They actually have the class divided into two spaces, a sitting area with tables, and a rather free area for play and rest and all sorts of other things. You can see this in many countries. This is another type of solution. But the most advantageous system seems to be to work intensively with few children, and have a general program going on for the rest.

How many residents should be housed under one roof?

It is not so important how many people you place under one roof, but what you put under one roof. A resident needs a total range of experience. If it is too small the range of experience is likely to be limited. You could successfully design an institution for 24 beds or 500 beds, because the main factor is individualization. But you lose the community atmosphere in a large institution and it is never recovered again when it gets beyond 300 to 400.

What type of new residential facilities are being planned?

A new regional center in Tuscon, Arizona will have residential units of the "town house" type. Each unit will have four children, divided into two and two. The same breakdown for the non-ambulatory will be used with the space arranged to accommodate them. The staffing ratio will be two to 24.

In Yakima, Washington, a 90-bed blind-deaf unit is being planned with three to four to a bedroom. We are using the village concept, a bed equals his house, several beds equal his community, the ceiling is the sky. There is a generous space between the beds, allowing the residents to get out easily.

In Montana sufficient funds were appropriated to build a small residential unit (about 40 beds) for moderately retarded children, which will provide 24-hour care on a five day per week basis. Local schools and other community services will be utilized where possible.

Woodhaven, Missouri has a 60-bed unit which provides 24-hour care seven days per week.

Sioux Falls, South Dakota has a 40-bed unit which currently provides 24-hour, seven day per week care for ten children and a 24-hour, five day per week care for 30. Plans are being made to accommodate 20 on a 24-hour, seven day per week basis.

At Champaign, Illinois, a 60-bed facility has just been completed which will be available 24-hours, seven days per week, or anything in between. The facility consists of three 20-bed units with two to four beds per room.

In Connecticut a system of regional residential centers have been developed. Several are already in operation. They serve a variety of purposes including short time care for children of families at times of crisis in homes or for other compelling reasons..

PROBLEMS OF RETARDATION WITH PHYSICAL HANDICAPS

Is it logical programming to separate the ambulatory and non-ambulatory?

We have not arrived at the point where we can handle this combination successfully. Doubtless, this would require additional staffing which involves administrative decisions.

Unfortunately, in most community programs as well as in residential programs it is common practice to serve the physically handicapped retarded in separate units. In public schools, for example, a child at the level of an educable or trainable retarded is often ineligible because it is not ambulatory.

In Denmark and in other Scandinavian countries they believe much more strongly in the need to mobilize children. They spend far more time in helping the child to ambulate, and in the process of learning to ambulate, they get him around. They have a much greater interest in physical programs, although in the institution near Copenhagen, they have a separate cottage for those needing acute psychiatric care, as well as a separate section comprising about three or four buildings for intensive medical care. But all of these youngsters participate in the general institutional programs. The isolation of the physically handicapped, which is such a terrible thing in so many of our institutions does not exist. Another point should be mentioned here -- the open air practice. In the middle of winter you see in Finland severely handicapped youngsters bundled up outdoors in the snow. I think you will find fewer non-ambulatory people in the Scandinavian countries because they make a greater effort to make them ambulatory. Non-ambulatory may be an appropriate descriptive term at the time of admission, but it should not be a "life sentence" as it is in so many of our institutions.

Can concept of "progressive patient care" be applied to non-ambulatory, multi-handicapped invividuals?

The United Cerebral Palsy Association is greatly concerned about the architectural impediments to good programming for individuals with physical disabilities and mental retardation. Not only are buildings still being built with architectural barriers (steps, narrow doorways, no handrails. toilet facilities inaccessable to individuals in wheel chairs) but facilities are being designed which do not reflect the best thinking in appropriate care and management of the non-ambulatory resident. For example, living quarters for the non-ambulatory are being designed which limit care and management to 24-hour bed-rest. No space is planned at bedside for wheel chairs or other mobility equipment although experience has shown that with the exception of extreme hydrocephalics, very deformed geriatric residents, and a few other rare anomalies, most non-ambulatory residents can use such equipment. No space is designed for out-of-bed activities, although most non-ambulatory residents can participate in such activities, if proper supportative equipment is provided. No dining space is included although many non-ambulatory or multi-handicapped individuals can be taught to feed themselves if adaptive equipment is used. Architectural barriers need to be avoided not only in non-ambulatory units but in other living, educational and recreational units as well. Otherwise the concept of progressive patient care cannot be applied to non-ambulatory residents.

Are we taking care of the retarded who are also physically handicapped?

Large percentages of the residents in multi-purpose institutions have significant physical handicaps or are not ambulatory. The figures are as high as 50%, and in some specialized institutions 80%. Many schools, sheltered workshops and day care centers in the community exclude individuals who are non-ambulatory-- either by design or by being dependent on outdated facilities. Often buildings are designed to keep the non-ambulatory in bed. This should be changed. Speech, feeding, bathing and dressing are basic. The program should be designed to bring them from one level to the next.

MENTAL RETARDATION AND MENTAL ILLNESS

Can certain programs for the mentally retarded be shared by the mentally ill and and emotionally disturbed?

There are a considerable number of mentally retarded individuals who are emotionally disturbed and need the attention of psychiatrists. The only problem is we cannot get the attention of psychiatrists. One of the most neglected fields in state after state is any kind of psychotherapy under psychiatric direction for the mentally retarded.

There are certain services that can be provided jointly. There are many programs in the workshop or vocational area where we have had mentally ill and mentally retarded. On the other hand in many countries the children who are emotionally disturbed are moved in a classroom for the mentally ill. This child needs even smaller classroom groups than the mentally retarded with a still more flexible program. But I would always say that there is a possibility that there are some services that can be given on an individual basis, just as many of the mentally retarded children with physical disabilities should be privileged to get services from centers serving the physically handicapped. We also feel that there are certain services in the normal public schools that can be extended with good results to mentally retarded children without implying that they should simply attend classes for the normal child. But there are certain activities that can be participated in by both groups.

Can you determine whether the child is emotionally disturbed or not?

The youngster comes to you with an operating level of intellectual performance that is low. You may find then by a really valid diagnostic operation within your program that, in some cases, this is due to lack of social stimulation and cultural deprivation and you move him on to another level. With others you may find this is due to a very heavy emotional overlay and you will try, I hope, a psychotherapeutically directed program under psychiatric direction, if such is available, to help these children. They may then grow out of your program. It is wrong to put the child who is disturbed and acting on a seemingly non-achieving level into a retarded class on a permanent basis.

How does this compare with the mixing of groups, that we talked about?

The question now is whether the last answer does not imply a contradiction to a previous suggestion that we could mix different groups of retarded in terms of both age, and degree of intellectual and social handicap. This is something that can be answered only in terms of the quality of the program. The better your program, the more easily you can mix the groups. If you have a flexible program, it is entirely feasible to have a higher grade, better endowed young girl or boy housed with more severely retarded children. But that means you must extend to this individual the privilege of leading a life that is appropriate for his needs, which implies that for substantial periods of the day he must be able to move out of the group, go to school, have the privilege in the evening of going to bed two and three hours later than the other children, and so on.

The people who recommend that you can mix groups often forget and say "Let's do it on a family basis." A 14-year old boy in the normal family is not home in the evening, he is out someplace. We have done this in delinquent institutions for years. In an institution for delinquents it is almost standard procedure now and has been for 25 years that in the evening the boys leave their cottage and one goes to a glee club, another goes to a pottery class and another goes into town for some activity, and so on. If you have within your institution this possibility for the older children and if you have your day facilities so arranged that the older youngsters in the evening can sit in a room appropriate for their activity level, then you could have more heterogeneous groupings.

But, as you will readily see this again comes back to a much tougher task of supervision and guidance. You need a far more sophisticated employee who will know how much leeway to give the older group, who will feel comfortable in letting them go out, and so on. There is a great danger about this because it can easily lead to exploitation of the older children. The step from stimulation, by giving them some responsibility, and letting them do some things that are nice and pleasant and letting them do step to exploitation by making them 12-hour-a-day baby sitters. It depends on the quality of the program.

THE THERAPEUTIC ENVIRONMENT

What can the architect contribute toward a more therapeutic environment?

It is important for the retarded to have his own place, away from activities where the noise level is high. He needs a place to put his belongings and personal articles.

Mildly retarded should have privacy in toilet and bath situations. As usually designed, most partitions are inadequate. Residents must learn to look the door behind them so they will act properly when in public areas and should be taught this at the earliest possible age. Modesty of dressing and bathing in some degree should be taught, if privacy is completely lacking.

Whenever possible, facilities should be geared to what is found in the community. Practice apartments should be set up, for experience prior to moving into the community. It is important to stress to the architect the fact that this is to be a home atmosphere and to train the child for living in the community. Less of an adjustment will be needed when the resident is released. Orientation cottages should be provided to de-institutionalize children ready to go into the community. These should be on the periphery of the institution grounds where they can take part in community activities and facilities.

How can an institutional atmosphere be avoided?

Eliminate ceramic tile walls and long corridors. Provide private baths rather than public baths. Smaller social groups help to avoid the institutional atmosphere and aid in controlling discipline problems.

How can the architect enliven the environment of the bedridden patient?

You should not only move the children out of their beds, but you should be able to move the beds outdoors. This does not just mean getting the youngsters into the fresh air, but it also means getting the youngsters from one stimulating environment into another stimulating environment. The Dutch emphasize very much that the bed be outside, so the child hears the birds, sees the trees, the leaves and so on. They believe that even with the most profoundly retarded, this is a very important area of stimulation and so they build, in their rough and cold climate, the wards so that the doors can be opened and the beds moved out. Some of the cheapest space is the outside area and this can be programmed space.

Can certain materials and colors have an effect on the learning environment?

Carpeting was researched extensively and a commercial grade acrylic fiber carpet was specified for all classrooms. One of our concerns was the safety factor in the classroom. Quite often, the classroom floor in the school becomes the learning space. This type of carpet provides the esthetic and warm effect so necessary in a learning environment.

Differences have been noted in behavior on tile as compared with carpet. The nicer surroundings often result in better behavior patterns, in keeping with the environment.

Natural woods, stone, warm colors can be important in getting away from the institutional look. The manner in which the facility is going to be used is more important than keeping the cost of building at a minimum.

Color coding has proven particularly helpful. It can be combined with shapes.

What effect does lighting have on the living and learning environment?

A classroom built with federal funds must have at least one window to the outside. This prevents the building of a classroom in the interior of the building or in the basement, where it is not possible to have windows. The question of the physiological or psychological aspect of a classroom without windows has been posed to a number of educators, teachers, and administrators, but there is complete divergence of opinions. I think that it depends upon the level of intelligence of the child occupying the classroom.

Tempered glass has been tried. So far the results have been good in panes up to 4 ft. to 6 ft.

The first consideration is the amount of time a person spends in this inside space. If after one or two hours a day, he goes immediately outside, then the enclosed classroom is likely to provide the best environment for intensive study. If on the other hand, the child is going to stay in a room eight hours a day, the effect may be harmful. How will he know the time of day, the state of the weather? The four walls would be very confining. Children and adults need the chance to look off into the distance. Here we need some advice on optical and psychological needs.

Isolation versus Stimulation

If you think of the institutional population, which means largely severely retarded, then I think (Dr. Dybwad) we are just plain phony when we say the children must not be distracted. I think with the severely retarded we should thank the Lord for every distraction to which they respond. Our whole purpose is to stimulate them to perceive, to see, and to notice. If a child does look up and see a bird, that is a point gained. We have built classrooms in this country and elsewhere with windows which were located so high that the children could not look out. The Dutch philosophy in the schools for the severely retarded is the exact opposite. They have very large windows and they have things outside that stimulate the children., They landscape for the very purpose of giving something to look at. During a recent discussion on the destructiveness of children, the Senior Matron of an eastern institution said that all the windows were broken but one -- the very large window on the north side.That window has never been broken and it is the only window where the children can look out and see something. I think we are in danger of listening to psychologists giving us all sorts of evidence from the psychological testing room in the basement, which has absolutely no valid bearing on the life problems we are facing when we plan for the retarded in institutions. What the psychologist finds as the result of an experiment in the basement of the administration building about the learning capacity of the child in a period of 15 minutes or half-hour has no bearing, as far as I am concerned, on the planning of classrooms where we have youngsters who spend hours in these classrooms, not in individual instruction.

But I will swear and anyone of you who has visited these classrooms knows, that of necessity children often sit with very little to do and we are grateful for further stimulation. Some of this goes back to the scientific opinions of Dr. Strauss which are still very controversial. Some people in our country and elsewhere still believe strongly in them. This refers to a particular group of mentally retarded young people, those who are described more or less adequately as brain-injured, where for the learning situation you are trying to create a surrounding that takes away stimulation. This is for a particular kind of child and has absolutely no bearing on the child with mongolism. This is a particular clinical group and, even there, the scientific question is hotly debated among educators and psychologists at the present time.

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